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Original Communications.

A REPORT OF SOME EXPERIMENTS ON THE REFLEX CONTRACTION OF BLOOD-VESSELS.*

By JAMES J. PUTNAM, M.D.

IN the *Journal de Physiologie*, t. i. p. 502, are reported some experiments made some years ago by Drs. Brown-Séquard and Tholozan, showing that when one hand is immersed in cold water the temperature of the other hand which remains exposed to the air may be found, by means of an ordinary thermometer, to fall several degrees, the amount varying in their experiments from 1° to 12° (C.), regulated in part of course by the temperature of the surrounding air at the time.†

Notwithstanding this marked fall of temperature in the hand, that of the mouth and axilla, in their experiments, either remained changed or rose slightly, showing that the temperature of the body at large is unaffected by the chilling of one hand. Once or twice only the temperature of the mouth fell slightly.

Similar results were obtained from the same experiments made on the lower extremities. At the same time they found a great difference in the susceptibility of different persons and of the same person at different times, and with a few persons there was no fall of temperature which an ordinary thermometer could detect.

A set of experiments, the sequel to those just referred to, has lately been made‡ by Dr. Brown-Séquard and Dr. J. S. Lombard, in which one arm was irritated by pinching, while the changes of temperature were noted by means of a delicate galvanometer attached to a thermo-electric pile. They found that the temperature of the hand and arm irritated rose slightly, while that of the opposite arm fell, the fall with the latter being greater than the rise with the former. In no case, however, did the fall of temperature produced in this way equal that observed in the cold water experiments; amounting at most to but a small fraction of a degree.

For many reasons there seemed to be no doubt that the fall of temperature observed in all these cases was due to the reflex contraction of bloodvessels on the side opposite to that irritated, and additional evidence for this explanation is afforded by some experiments which I have made upon frogs, examining the vessels in the web of one foot under the microscope, while some irritant was applied to the other foot.

The frog's medulla oblongata was first broken up with a needle, by which operation, as is well known, the power of voluntary motion is destroyed and the brain is prevented from any longer receiving sensitive impressions from the extremities, while the circulation continues unchanged for days and even weeks, respiration taking place through the skin. The animal was then pinned to a piece of cork, and the web stretched over a hole by threads tied to the toes. The contraction of the vessels under the microscope was determined, 1st, by comparing them with a micrometer consisting of two hairs stretched across the field of the eye-piece; 2d, by observing the intensity of their coloration; 3d, by watching the rapidity of the current flowing in the smaller vessels, which is diminished when the arteries contract. The irritants used were principally cold, and dilute ammonia.

Three important obstacles to correct observation were, 1st, that irritation of the foot was generally found to cause reflex contraction of all the voluntary muscles, simulating voluntary struggling, and this will often bring about a complete momentary stasis of the circulation in the web, with, sometimes, great contraction of the arteries there; 2d, that the action of the heart was often increased by the same irritation,

* MR. EDITOR,—Mr. Putnam's Inaugural Dissertation contains a number of new and interesting experiments concisely related, and will, I think, prove acceptable to all your readers who are engaged in physiological studies. I would therefore recommend it for publication in your columns. Yours very truly,
Boston, May 11, 1870. O. W. HOLMES.

† The fall was generally most marked when the pain in the hand immersed was the most severe.

‡ Archives de Physiol., Nov. and Dec., 1869.

and the delicate vessels dilated by the increased force of the blood-current so much that slight contractions may have been overborne; 3d, that occasionally more or less rhythmical contractions were observed, taking place independently of the irritation of the other foot.

Allowing for these obstacles, out of 52 trials on about a dozen frogs, in 15 a marked contraction was seen in the vessels of one foot, which seemed fairly attributable to the irritation of the other. The contraction affected almost, if not quite, exclusively the arteries, and generally followed immediately or very shortly after the irritation. With one frog, however, after the application of ammonia as usual, there was some reflex struggling, and not until this was over, a marked contraction of the arteries in the other foot; the same result followed several repetitions of the application. Sometimes a slowing of the circulation took place which was greater than the observed contraction seemed to warrant, and in these cases I inferred that the slowing was due to the contraction of arteries not seen, for I have found a similar slowing without much contraction to follow irritation of the sciatic nerve on the same side with the observed web. The use of cold as an irritant, which consisted generally in the laying of bits of ice upon the foot, had no noticeable effect except in one instance. In this, the application of a bit of ice at first, in a test tube, and then of cold water merely to one foot, was followed immediately by a remarkable slowing of the circulation, and finally by a complete stasis of the same, in the observed part of the opposite web. After the removal of the cold tube the circulation became gradually re-established, and when completely so another application was made with the same result, only this time the circulation was not entirely stopped, but only made noticeably slower. The same was repeated several times, the slowing each time being less marked, without at any time causing general struggling. The test tube was then accidentally applied to the thigh of the same leg, upon which instead of a slowing of the circulation there followed a marked acceleration, the current being again slowed when the cold was reapplied to the foot as before. This experiment was made twenty-four hours or more after the frog's medulla had been destroyed, at which time the circulation is generally more feeble than at first, and the contractions are more frequently observed. At the end of the experiment the arteries were left a good deal dilated.

As a rule the arteries did not contract equally throughout their length, but only at certain points or over limited spaces.

As a final experiment, in three frogs the nerves of the lower leg at first, and afterwards the sciatic nerves, were exposed and irritated by pinching and twisting. With the first frog so treated an immediate and marked contraction of the observed arteries in the web of the opposite side followed each of several successive irritations, each contraction lasting for about one minute and unattended with general struggling. With the second frog a contraction came on, but not until a few seconds after the irritation had been made, and after the first time it failed to appear at all. With the third no contraction, or slowing of the current was seen.

A second set of experiments made lately, in the same manner as before, gives results which are less satisfactory in point of numbers, and of course throws some doubt upon the accuracy with which the first observations were made.

Cold, in these experiments, as before, failed to cause any contraction even when the ice was kept in contact with the opposite foot for ten or fifteen minutes.*

A very weak, interrupted current of electricity was used successfully as an irritant, both on the foot and on the exposed nerves. Altogether, out of six sets of trials with four frogs in which the skin of the foot was irritated, a marked contraction was seen in two. Of eight sets of trials where the nerves were exposed and irritated, by pinching, by touching with ammonia, and by electricity, well-marked contractions were seen in four. In these latter experiments, each individual application of the irritant was not counted as a distinct trial, as was done to a great extent in the former; but if a marked contraction was observed once or twice in the course of a set of applications the whole set was put down as one successful experiment. At the same time, as so small part of the web was under the microscope at any one time many contractions must have escaped notice.

The most satisfactory results in all respects were obtained when the nerves themselves were exposed and irritated by ammonia and by electricity (i. e. galvanic current). It is important to notice that in

* It has been observed by Poiseulle (Milne Edwards's Phys., t. iv. p. 206) that in batracians the course of the general circulation may be slowed by exposing a small part of the body to cold, and he explains the fact by supposing that the whole mass of the blood is thereby cooled, it being known that cold fluids move less rapidly through small tubes than those which are warm.

every case in which the effect of these irritants upon the action of the heart was noted, this either remained unchanged or was increased, never diminished, in force and frequency.

Uniformity in experiments of this kind is hardly to be expected if we are to judge from the experience of Verschnir,* who "has seen arteries remain at one time entirely unaffected by the (direct) application of various stimuli, while at another time the application of the same stimuli would cause the most energetic contractions to take place. Sometimes these differences are found between the two sides of the body of the same animal, and even between different twigs of the same arterial stem."

The quickly varying circulation in the ears of a rabbit may also be made use of to show this nervous association between the two sides of the body. In repeated experiments upon two rabbits, I found that if the bulb of a thermometer were held tightly in a fold of one ear, and then, when the mercury had ceased to rise, the other ear were quickly surrounded with some pieces of ice held loose in the hand or in a bag, the mercury would generally immediately fall† through ½° to 4° (F.). After remaining at its new level for from a few seconds to four or five minutes, the mercury would then rise rapidly to the extent of 15° to 25°, the ice being still kept in contact with the opposite ear, and at this time the arteries could be seen and felt to be greatly enlarged. In one experiment the temperature fell more than 10°, and had not risen at the end of ten or fifteen minutes; but in this case the rabbit was small, the room cold, and the ear itself got a little wet and chilled. In one case, a piece of heated wood was substituted for the ice; in this no primary fall was observed, but while the mercury was rising as before its course could be checked momentarily by a sudden re-application of the wood. In some cases, also, where ice was used, no primary fall took place; but, except as stated, the great and generally rapid rise was invariable. The action of the heart was unaffected or diminished while the ice was in contact with the ear.

In Milne Edwards's Physiology, t. iv. p. 204, reference is made to some experiments by Callenfels,‡ showing that the vessels in one ear of a rabbit may be made to dilate by pinching the other ear, but nothing was said of a primary fall; the original article I have not been able to see. He is further quoted as saying:—"If one cuts the spinal nerve (supplying the ear) in a rabbit, an operation which causes a slight dilatation of the bloodvessels in the ear of the same side, he can afterwards provoke a contraction of these same vessels, not only by galvanizing the peripheral end of the cut nerve, but also by irritating in the same manner its trunk which still remains in connection with the medulla, and which is in no more direct communication with the part where the effect of the irritation is produced. It must be, then, that an irritation has been transmitted to the cerebro-spinal axis, and has there set up a nervous action which is directed towards the vessels of the ear."

As the processes of nutrition are so closely connected with, and so dependent upon, the state of the local circulation, pathological facts belonging to the class of those which follow acquire a fresh interest in view of the physiological facts referred to above. In Circular No. 6,* Surgeon-General's Office, are given seven cases of reflex paralysis from traumatic cause, and to them may be added an interesting case reported to me by Dr. J. F. Adams, under whose care it was in Washington. Of these eight cases, five indicate a sympathetic relation between the affected limb and its lateral or longitudinal homologue; in three of these, the leg was hit and the arm of the opposite side was paralyzed;† in four cases the leg was hit and the paralysis affected the opposite leg, and in two of these latter the paralysis of tact and the pain were found to have fallen upon a place exactly corresponding to the wounded spot as regards position."‡

The symmetrical arrangement of syphilitic eruptions, of psoriasis,§ and of diseases of the coats of the arteries,‖ is thought by Paget and Budd to be due to the perfect structural likeness existing between exactly symmetrical portions of tissue, which renders them equally liable to be affected by morbid matters in the blood, or by a deficiency there of matters necessary to

* Cit. in Milne Edwards's Physiologie, t. iv. p. 206.

† The extent of the fall must depend, as in Brown-Séquard's experiments, partly on the temperature of the surrounding air.

‡ Zeitschrift für rationelle Med., 2d Ser., B. vii. p, 191. 1855.

* Cit. Boston Med. and Surg. Journal, April 5th, 1866. Art. by Dr. Wilder, on Symmetry, &c., in Disease.

† In the experiments of Drs. Brown-Séquard and Lombard, above referred to, there was found a certain nervous association between the arm and leg of opposite sides.

‡ See, also, a case reported by M. Charcot in the Jour. de Physiol., t. ii. p. 112, and Dict. des Sciences Med., t. liii. p. 613.

§ Med.-Chirurg. Transact., vol. xxv. Paget and Budd.

‖ Recherches, &c., by Bizot. Reviewed in Brit. and For. Rev., vol. vi.

nutrition. But there is another class of cases, those of so-called metastasis, in which diseased conditions are conducted apparently through the nervous system, from one organ, as the eye or testis, to its symmetrically disposed fellow. In cases of this class at least, and in those given in Circular No. 6, where there is no especial morbid matter in the blood nor any especial organic derangement of the blood itself, and where the disease does not attack the two symmetrical parts at the same time, as would be the case if the peculiar arrangement were due to structural likeness between these parts, the secondary changes in nutrition may very possibly be due to local disturbances of circulation caused by some influence set up by the primary injury or irritation, and conducted through the spinal cord and vaso-motor nerves to the part secondarily affected.

THE LATE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

By J. L. Sullivan, M.D., Boston.

On reviewing the brief but severe strictures, open and covert, upon the proceedings of the American Medical Association at its recent meeting in Washington contained in several numbers of the Journal, I cannot avoid the conclusion that the exponent of medical ideas in Massachusetts is infected with the prevailing misconception as to the position and action of that body with reference to the unhappy controversy between the Medical Society of the District of Columbia and the "National Medical Society of the District," so called.

The fairness and impartiality uniformly evinced by the editors of the Journal towards those who differ from them in opinion, afford the assurance that statements intended to vindicate the honor of the Association and remove the unjust aspersions that have been showered upon it, will, provided they are made in the proper spirit, meet with a cordial reception from the organ of the medical profession in New England. I feel emboldened, therefore, to offer the following explanatory remarks, with the request that their publication may not be unnecessarily delayed.

I shall begin by affirming several propositions, in which certain fundamental principles regulating the government of representative bodies in general, as well as the American Medical Association, are embraced and, as it were, formularized. I shall afterwards endeavor to apply, with logical precision, these principles to the case in hand, with the expectation of proving the injustice done the Association by the press, both medical and secular, throughout the country.

The American Medical Association, then, is a representative body, composed of delegates annually elected or appointed by medical societies, colleges, or hospitals, affiliated with the Association through the adoption of its Code of Ethics, and therefore entitled to representation therein. Like other representative bodies, the Association is governed by a system of laws or rules, in this instance denominated its Code of Ethics.

Like other representative bodies, it can recognize or receive as members none but duly accredited representatives of organizations entitled to representation therein.

As happens in the case of other representative bodies, the seats of members of the Association are liable to be contested, or the attempt may be made to invalidate the credentials of persons claiming to be members thereof. In either event, *it becomes the duty of the Association to determine, in accordance with its existing laws or regulations, whether persons whose seats are contested or whose credentials are disputed, are or are not entitled to membership therein.* However burdensome or invidious circumstances may render the discharge of this duty, nevertheless it is one which the Association cannot refuse to perform without dishonor to itself and injustice to the parties whose rights are involved.

Now, on applying these simple, indeed almost self-evident propositions to the proceedings of the Association, is it not clear that that body could not refuse to consider the questions at issue between the Medical Society of the District of Columbia, and the so-called "National Medical Society" of that District? That it could not refuse will, I think, be apparent from the following considerations.

The former of the above-mentioned Societies, viz. the Medical Society of the District of Columbia, a numerous and highly respectable organization, deriving its charter from the Congress of the United States, and affiliated from the beginning with the National Association, had formally protested against the admission of delegates from the latter, that is, from the so-called "National Medical Society" of the District, on the ground that whereas the aforesaid Society had been organized in violation of the Code of Ethics of the Association, and that by its subsequent action it had con-

stantly infringed the provisions of the Code, therefore the Society never had been and was not now affiliated with the Association, and consequently not entitled to representation therein.

These charges were of too serious a nature to be dismissed without investigation. The matter was accordingly referred to the Committee on Ethics. The members of the Committee unfortunately disagreeing, a majority and minority report were presented, neither of which shed the necessary light upon the merits of the controversy; neither of which offered any substantial reasons for the action recommended therein. Thus the Association, as much in the dark as before, was reduced to the alternative of adopting at random one report or the other, or of granting a hearing to both sides. That it ultimately chose the latter was, in my judgment, very much to its credit. A patient and impartial investigation of all the evidence resulted in a verdict *against* the so-called National Medical Society of the District of Columbia, a verdict honorable to the Association because rendered with full knowledge of the facts and in accordance therewith—a verdict, moreover, "to all intents and purposes unanimous." The question thus decided was a question of ethics, pure and simple, into which, despite the assertions to the contrary abounding in partizan newspapers or other publications under the control of fire-eating politicians, considerations of race or color did not and could not intrude.

In conclusion, therefore, I submit that no body of sensible men that could be convened in Christendom would have acted or ought to have acted otherwise than did in this instance the American Medical Association, confronted, as it was, with a question which it could not avoid deciding, and upon which it was bound by every consideration of justice and honor to render a decision in accordance, so to speak, "with the law and the evidence."

Furthermore, I submit that it is in the nature of things impossible that a representative body of whatever description should not, occasionally at least, be called upon to adjudicate questions involving the eligibility to membership of persons claiming to be duly accredited thereto, and that in such cases it becomes the imperative duty of the organization to render a just and impartial decision in accordance with its existing rules or laws and the testimony presented. This is precisely what the American Medical Association did, and for so doing has it not been most unjustly assailed?

Reports of Medical Societies.

CASES REPORTED AT THE MEETING OF THE ESSEX NORTH DISTRICT MED. SOCIETY, MAY 4, 1870. JOHN CROWELL, M.D., COR. SEC. PRO TEM.

Dr. Perkins, of Newburyport, reported a case of dropsy resulting from disease of the heart. The case was peculiar in not yielding to the usual remedies. Powerful diuretics and alteratives had been administered in vain. Dr. Perkins considered the condition of the case as somewhat remarkable, and asked for suggestions.

Dr. Huse, of Georgetown, spoke of his success with digitalis in such cases. His experience with this drug had been that it did not act as a diuretic when the pulse was above its normal beat. When the pulse was brought from 120 to its normal state, then the digitalis began to exert its diuretic properties.

Dr. Whittemore spoke of the successful use of a decoction of the leaves of this drug over the kidneys in an obstinate case of retention, following scarlet fever.

Dr. Lovejoy reported a case of double placenta, in a single birth. A drawing was exhibited showing the placentæ to be distinct and perfect in all respects. This rare anomaly is not mentioned in the usual textbooks on obstetrics. Dr. Sullivan suggested that it was mentioned by Cazeaux in his great work.

Dr. Lamb spoke of the successful use of the fluid extract of ricinus in cases of deficient secretion of milk.

Dr. Cross, of Newburyport, reported a case of difficult labor with breech presentation. One leg only could be detected by manipulation. After delivery it was found that the other leg was firmly twisted around the neck of the child. Several similar cases were reported.

Dr. Tracy, of Andover, spoke of a case of difficult delivery, in which the frontal bone was indented, presenting a concave surface. An incision was made with a bistoury, and the bone snapped into shape by means of a probe.

Dr. Morris Spofford, of Groveland, reported an interesting case of a man, of intemperate habits, suddenly attacked with violent pain in the bowels, which was temporarily relieved by subcutaneous injection of morphine. The patient was out the

next day; but the pain returned in the evening, with febrile symptoms of a typhoid type. Next morning found the bowels tympanitic, and the patient in a dying condition, pulseless and free from pain. Death occurred in about thirty-six hours from the first attack.

As the cause of death was somewhat obscure, a *post-mortem* examination, made six hours after death, revealed the following condition:—

The peritoneum was distended with gas. The liver and spleen were healthy. The stomach contained a small quantity of fluid of no special character. Its walls were tender, so as to give way to the slightest pressure of the fingers. The duodenum was, like the stomach, so tender that it could scarcely be handled without breaking. The small intestines were extensively adherent among themselves, looked ragged and rotten, as indeed they were. They, with the omentum, seemed as though they had been boiled, and done to death at that.

The small intestines contained nothing but a small quantity of fluid like that in the stomach, and the same to the amount of a quart was outside the bowels in the peritoneal cavity.

The ileum was perforated in three or four places, and many patches of ulceration were visible as shown in the specimen. The large intestines were empty, and any farther exploration seemed uncalled for.

Dr. Spofford reported another case of a young lady suffering from a difficulty of the bowels of long standing, under the treatment of a homœopathic practitioner.

The patient was much emaciated, but no disease of the lungs could be detected. She was passing from her bowels, two or three times a day, a small quantity of fluid, of the consistency of oat-meal gruel, with globules of oil floating on the surface. Fæcal discharges once in two or three days, attended with pain over the ileo-cœcal region. The disease was pronounced *mesenteric tuberculosis*. Nutritious and stimulating treatment was adopted. An abscess soon made its appearance over the ileo-cœcal region, discharging pus, followed by a fluid identical with that passed from the bowels. The opening was circular, and half an inch in diameter.

The patient was sinking under the exhaustive discharge, when a similar abscess appeared on the opposite side, going through the same process of suppuration, and discharge of peculiar fluid, as in the other fistula. As cold weather advanced the patient rallied a little, and the openings showed signs of healthy granulations. The pulse had come down to 100, and favorable signs of closing are apparent in the edges of the opening. The symptoms favor a hopeful prognosis.

May 30th.—This patient is now well and fleshy, and rides four or five miles without fatigue. The fistulous openings almost closed.

Bibliographical Notices.

Manual of Hypodermic Medication. By Roberts Bartholow, A.M., M.D., Professor of Materia Medica and Therapeutics in the Medical College of Ohio, &c. &c. Philadelphia: J. B. Lippincott & Co. 1869. Pp. 150.

The hypodermic method of using remedies has become quite general during the last few years, and no one who has employed it would willingly be without his syringe. This little manual is intended to be a guide for administering medicines hypodermically. The second chapter of the first part gives information in regard to the instruments and the solutions to be used, the mode of making the injection, and precautions to be taken. The second part is devoted to special therapeutics, and in it each agent is considered separately. The author recommends the following formula for *morphia*:—

℞. Morphiæ sulphat., gr. xvi.;
Aquæ distill., ʒi. M.
Dissolve and filter.

Fifteen minims represent half a grain; five minims, a sixth of a grain. He says: "In commencing, it (the dose) should not exceed one third of that ordinarily administered internally." The physiological effects of this remedy when thus administered are given, with a record of the temperature, pulse and respiration during six hours.

The following is the author's formula for *atropia*:—

℞. Atropiæ sulphat., gr. ij.;
Aquæ distil., ʒi. M.

Five minims of this solution represents one forty-eighth of a grain. The physiological effects of this agent are described, and the range of pulse, respiration and temperature given. These last are just the reverse of what was found in regard to morphia. Immediately after the administration of morphia, the pulse was lowered

from 75 to 54 at the end of four hours; then rose to 80. After the use of atropia it rose from 72 to 105 at the end of two hours; then fell to 65. Under morphia respiration fell from 17 to 12; then rose to 17. Under atropia, the respiration rose from 20 to 28; then fell to 19. Under morphia the temperature fell from 37·6° C. to 36·8°; then rose to 38°, and fell again to 37°. Under atropia it rose from 37·6° C. to 38·2°; then fluctuated between 37·8° and 38°.

The following is the author's formula for the use of morphia and atropia combined:

℞. Morphiæ sulph., gr. xvi.;
Atropiæ sulph., gr. i.;
Aquæ distil., ʒi. M. Filter.

Five minims of this solution represent one sixth of a grain of morphia and one ninety-sixth of a grain of atropia. A better proportion is one fourth of a grain of morphia and one ninety-sixth of atropia, as follows:—Morphia solution, 8 parts; atropia solution, 2 parts.

"Whenever the hypodermic injection of morphia is proper and necessary, atropia should be combined with it, unless contra-indicated."

Considerable space is given to strychnia, with its physiological action and therapeutical uses. The following formula is recommended:—

℞. Strychniæ sulphat., gr. ij.;
Aquæ distil., ʒi. M.

Five minims represent one forty-eighth of a grain.

The rest of the book is devoted to short notices of Conia, Woorara, Nicotia, Hydrocyanic Acid, Physostigma, Caffein, Ergotin, Quinia, Mercury, Arsenic, Irritant Injections.

A full index is supplied at the end of the volume. W.

The Cell Doctrine: its History and Present State. For the use of Students in Medicine and Dentistry. Also a Copious Bibliography of the Subject. By James Tyson, M.D. Philadelphia: Lindsay & Blakiston. 1870. Pp. 150.

This is a useful *résumé* of the earlier views on cell development and growth, followed by notices of the theories of Schleider and Schwann, Henle, Martin Barry, Prof. John Goodsir, Huxley, J. Hughes Bennett, Todd and Bowman, Virchow, Dujardin, Beale and Robin, and closing with the author's views. He believes the ultimate physical element to be what is commonly called the cell, or elementary part, and that it is composed of matter in two states—one central, the other peripheral. The former is that upon which the origin and existence of the cell depends and has the power of multiplying itself. The latter is formed material, derived from the germinal matter, and is the portion of the cell in which alone function resides. The nucleus is not considered essential to the reproduction of the cell. The bibliography is very copious, covering over thirty pages. W.

A Physician's Problems. By Charles Elam, M.D., M.R.C.P. Boston: Fields, Osgood & Co. 12mo. Pp. 400.

The questions treated by Dr. Elam under this title, are problems indeed; complex in their conditions, grave in their nature, eternal in their existence. They regard the life, the health, the disease, the death, moral and physical, of the human race; and as such, demand of men, especially of medical men, a wider and a deeper consideration than they are wont to give them. Natural heritage involves the transmission of *all* the parent has to the child. How great, then, are the parent's responsibilities, not only as to their *general* character, pursuits, and bodily or mental habit, but also as to their state at the moment of conception.

If there are such things as moral and criminal epidemics, a new stand must be taken, both by those who find themselves in danger of setting pernicious examples, and those who have it in their power to guard others from their influence.

And finally, if the race ever degenerates by the operation of these two causes, the one of contiguity more or less occult in the *present*, the other by hereditary continuity in the *future* and to all time, we cannot too closely scrutinize the mode of operation and the various effects of all those agencies which men are so prone to employ for the temporary relief, or apparent elevation of their weak humanity. In this connection, Dr. Elam takes ground with those who regard the injurious effect of the moderate use of tobacco as by no means proved, but strongly denounces its abuse; and is full of evidence from all quarters as to the baneful influence of the stronger alcoholic stimulants upon the user, his friends and his descendants; idiocy and mental imperfection of all kinds being traced directly to it.

It was unfortunate for our author that he had not been able to read Darwin's late work upon Variation of Animals and Plants un-

der Domestication, before publishing these essays; but on the other hand, the similarity of both facts and treatment and conclusions, upon many points, is most suggestive when we consider that the one author is a physician in active practice, and approaches the subject from the practical side of his comprehensive profession; while the other is a quiet naturalist, who is now ruminating, as it were, in seclusion, the stores of observation and study which a previously long and active life has enabled him to gather concerning the most abstruse biological problem of the day, the mode of origin of species; and who, whether his peculiar theories prove true or not, will have far advanced both the methods and the means of viewing the ways of God to man. On the other hand, while agreeing with Darwin upon many minor points, our author expresses a very decided lack of conviction of the truth of any "development theory."

On page 38 is an intelligible expansion of Goethe's aphorism, that "it is in her monstrosities that Nature reveals to us her secrets." But in remarking this and other references to anomalous formation, one is struck with the almost entire lack of indication that Dr. Elam has seen such cases himself; or, if he has seen them, taken the pains to record and compare them. He may have had reasons for using only the information derived from others, and been thereby better able to discuss its bearings impartially. But now that he has so clearly and forcibly presented some of the most tremendous problems of the day, and suggested the methods of viewing them, let us hope that he may some time add to the present meagre stock of information by means of which their final solution is to be gained.

At any rate, our professional brethren, whose advantages are greater than those of any other class of men for advancing certain scientific questions, ought to lose no opportunities of collecting and studying the facts of both normal and abnormal development, and of the extent and kind of influence which the parents may exert upon the moral and physical constitutions of their offspring. B. G. W.

Third Annual Report of the Metropolitan Board of Health of the State of New York. 1868.

This volume of 700 pages reflects great credit upon those who prepared it and whose work it records. It represents a degree of force, of intelligence, of science allied with practical sagacity, of skilful adaptation of means to ends, which could hardly be expected anywhere, but which has been developed in the city of New York by the awful accumulation of sanitary evils which has so long existed in that most unclean of cities, and the zeal, knowledge and skill of those who have for three years waged desperate war for reform. We may be mistaken in the belief, but we cannot help thinking that experience gained in the army was necessary to the successful conduct of this contest with the powers of negligence and filth. The man who could so organize a moving tent-hospital of five thousand beds in the Army of the Potomac that every man knew his place, was possessed of the kind of talent to set this great work in motion in the city of New York. Let all honor be given to Dr. Edward B. Dalton for these services. Although he has now retired, through ill health, the spirit which he infused remains behind him.

The present volume tells us what the Board of Health were able to do in the third year of their existence. The magnitude of the work is such that ordinary readers must be repelled from its study and full appreciation. One feels, in looking over the bulky pages crowded with information, like a visitor to the picture of the battle of Gettysburg, anxious to get on still higher ground and out of the bewildering details, that he may survey the whole field and catch the salient points.

Here are mingled the vital statistics of Dr. Harris, the admirable report of Drs. Morris and Stiles on the Texan cattle disease, learned and far-reaching disquisitions on fungous parasites, reports of engineers and of chemists, plans for markets and docks, reports of the extent of the reform in tenement houses sheltering half the population of the city, reports upon water, gas, pavements, slaughter-houses, stables, baths, public urinals, vaccination, and an infinite variety of lesser matters. All are worthy of study, and many are models of scientific and practical work; but their very extent and completeness will deter many readers.

One serious fault in the report is to be remarked—the absence of a complete index to the contents of the volume. An inquirer after an essential fact may search for a long time in the disjointed reports for what he needs, exhausting his patience and rendering him liable to discard the whole book for this one serious omission.

The illustrations by colored plates, diagrams and drawings are all that could be wished, and a credit to American art. D.

Obstetric Operations, including the Treatment of Hæmorrhage. By ROB'T BARNES, M.D. Lond., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and the Diseases of Women and Children at St. Thomas's Hospital, &c. &c. With Additions by BENJAMIN F. DAWSON, M.D., late Lecturer on Uterine Pathology in the Medical Department of the University of New York, &c. &c. New York: D. Appleton & Co. 1870. 8vo. Pp. 483. 87 Outline Illustrations.

WE quote the Editor's Preface:

"To the student and practitioner this work will prove of the greatest value, being as it is, a most perfect text-book on 'Obstetric Operations' by one who has fairly earned the right to assume the position of a teacher.

"Aware that it would have been presumptuous to have attempted any improvement of Dr. Barnes's valuable addition to the science of obstetrics, the editor has therefore simply inserted such notes and additions in the original work as the differences in procedure, and in instruments in this country, rendered necessary or advisable.

"He trusts, therefore, that any apparent shortcomings on his part will be excused, and that the work, as presented the first time to the profession of the United States, will meet with that favor which the name of its author should entitle it to receive."

There is much that is original in thought in this book; much that is worthy the attention of the advanced practitioner. Dr. Barnes is no compiler. Having investigated and judged for himself, he describes clearly and concisely. Of the correctness of this statement the reader may form an opinion from the following passage. Speaking of the source of hæmorrhage in placenta prævia, Dr. Barnes says:—

"Next there came a new theory, based upon a presumed physiological basis. Levret believed that the placenta supplied a portion of the blood in this form of uterine hæmorrhage. Rawlins, of Oxford, says: 'The blood proceeds more from the vessels of the detached portion of the placenta than from the denuded vessels of the uterus.' The late Prof. Hamilton entertained the same opinion. Kinder Wood, Radford, and Simpson, adopted this opinion; but they did not agree in their reasoning from it. Simpson drew from it the practical conclusion that, to stop the hæmorrhage, we should completely detach the placenta. Radford, who had previously adopted this practice, was led to it mainly by the clinical observation that the hæmorrhage had ceased on the spontaneous separation and expulsion of the placenta. Another resource, then, was added to our means of dealing with placenta prævia. We might choose between forced delivery and artificial total detachment of the placenta.

"*How is the total detachment of the placenta accomplished?* The method prescribed is to pass the hand, if necessary, into the vagina, then to pass two fingers through the cervix uteri, and with them to separate the placenta.

"The fatal objection I urged against this proceeding was that it was impracticable. In by far the greater number of cases the placenta extends higher than the meridian of the uterus, often reaching the fundus. The fingers are not long enough to reach even half-way toward the farther margin of the placenta. The diameter of the placenta is nine or ten inches; the fingers will barely reach three inches. In the greater number of cases, therefore, in which the directions prescribed have been followed, the placenta has not been wholly detached, and the result, when successful, cannot be attributed to an operation which was not performed. This is further proved by the history of some of the cases narrated as examples of this practice. The child was born alive. Is it consistent with our knowledge of the conditions upon which the child's life depends, to suppose that the child will survive if the whole placenta be detached, unless the birth follow the detachment immediately? And this condition under the postulates of the hypothesis, is wanting.

"The entire detachment of the placenta has been urged on the ground that it can be executed at a stage when the dilatation of the cervix is insufficient to admit of turning. But, if it cannot be executed without passing the whole hand into the uterus, that is, without forcing the hand through the undilated cervix, in what respect is the operation less severe than that of delivery by turning? Is it not reasonable to conclude that, since the forcible entry has been effected, the seizure and extraction of the child, as well as the detachment of the placenta, had better, to give the child a chance, be completed at the same time?

"If so, the special character of the pro-

ceeding vanishes; it is even more severe than turning, which does not require the hand to be passed through the cervix.

"But it is contended that clinical observations prove that hæmorrhage has stopped on the total detachment of the placenta. These observations are partly true, partly fallacious. The true observations are those in which the placenta has been *spontaneously* cast off and expelled before the birth of the child. These cases are not numerous. They do not justify the conclusion drawn, that the *artificial* total detachment of the placenta will be equally followed by arrest of hæmorrhage. There is a fundamental physiological distinction between the two cases. When the placenta is cast off spontaneously, it is because the uterus contracts powerfully. This contraction stops the bleeding. When the placenta is detached artificially, there may be, and probably is, defective uterine contraction. The bleeding will be likely to continue. There is no independent virtue in the mere detachment of the placenta, as *post-mortem* hæmorrhage abundantly proves.

"Here, then, we have true observations erroneously interpreted. The fallacious observations are of the following nature: The physician, seeking to imitate the spontaneous detachment, obeys the precept to pass two fingers into the uterus, and concludes that he has wholly detached the placenta. In this he has, in all probability, deceived himself. The fingers can only detach as far as they will reach, that is, from an area of two or three inches from the os uteri. The operator has unconsciously failed in doing what he tried to do; he has unwittingly done very nearly what he ought to do. The hæmorrhage stops; he sees in his success a proof of the truth of the theory that total detachment of the placenta is the security against hæmorrhage. But he has not detached the placenta, as he imagined; he is simply giving proof of the truth of a very different theory.

"I will now endeavor to give a succinct view of my theory of placenta prævia, and of the principles that should guide us in the treatment of this complication.

* * * * * * *

"The inner surface of the uterus may be divided into three zones or regions, by latitudinal circles. The upper circle may be called the upper polar circle. Above this is the fundus of the uterus. This is the seat of fundal placenta, the most natural position. It is the zone or region of safe attachment. The lower circle is the lower polar circle. It divides the cervical zone or region from the meridional zone. The meridional space comprised between the two circles is the region of lateral placenta. This placenta is not liable to previous detachment. Attachment here may, however, cause obliquity of the uterus, oblique position of the child, lingering labor, and dispose to retention of the placenta and *post-partum* hæmorrhage.

"Below the lower circle is the cervical zone, the region of dangerous placental attachment. All placenta fixed here, whether it consist in a flap encroaching downward from the meridional zone, or whether it be the entire placenta, is liable to previous detachment. The mouth of the womb *must* open to give passage to the child. This opening, which implies retraction or shortening of the cervical zone, is incompatible with the preservation of the adhesion of the placenta within its scope. In every other part of the womb there is an easy relation between the contractile limits of the muscular structure and that of the cohering placenta. Within the cervical region this relation is lost. The diminution in surface of the uterine tissue is in excess.

"The lower polar circle is, then, the physiological line of demarkation between prævial and lateral placenta. It is the boundary line *below* which you have a spontaneous placental detachment and hæmorrhage; *above* which spontaneous placental detachment and hæmorrhage cease.

"When the dilatation of the cervix has reached the stage at which the head can pass, and all that part of the placenta which had been originally adherent within the cervical zone is detached, and if, as is the constant tendency of Nature to effect, the intermitting active uterine contractions arrest the hæmorrhage, a stage is reached when the labor is freed from all prævial placental complication; the lateral portion of placenta retains its connection, supporting the child's life; the labor is, in all respects, a natural labor.

"This is the course which Nature strives to accomplish. I have verified it frequently at the bedside. Many cases are recorded by old and recent authors in which this course was successfully accomplished, although the narrators failed to interpret the phenomena correctly. If observations in point are not more abundant, it is simply because men, acting servilely under the thraldom of the 'unavoidable hæmorrhage' theory, fear to let Nature have a chance of vindicating her powers. The instant re-

sort to the *accouchement forcé* interrupts the physiological process, we can see no more.

Mercier seems to have been so struck with the occasional absence of hæmorrhage, that he wrote an essay under the title, '*Les accouchements où le placenta se trouve oppose sur le col de la matrice sont-ils constamment accompagnés de l'hémorrhagie.*' He thought the exhalant vessels were in a state of constriction which opposed the passage of blood. Moreau and Simpson thought the previous death of the fœtus, and the consequent diversion of blood from the uterus, explained the absence of hæmorrhage. This, to a certain extent, may be true; but I am in a position to affirm, from repeated observation, two things: first, that hæmorrhage occurs when the child has long been dead; secondly, that there may be no hæmorrhage although it is born alive.

"Cazeaux also says, 'the hæmorrhage which has been generally regarded as inevitable under these circumstances may nevertheless not occur, not even during labor; and the dilatation of the neck may be effected without the escape of a drop of blood.'

"In an appendix to my work on Placenta Prævia, I have related the histories of several cases, some quoted from various authors, and some occurring under my own observation, illustrating this point. Indeed, it was the reflection upon a case of this kind, which I saw in 1845, which led me to the working out of my theory. The cases in this appendix referred to, prove the fallacy of the explanations before offered as to the cause of the cessation or absence of hæmorrhage. They show that it is not accounted for by the death of the child, nor by pressure of the head or other part of the child upon the bleeding surface. They afford strong presumption, at least, that the hæmorrhage ceases when the physiological limit I have described has been reached, tonic or active contraction of the uterus concurring. I am far from affirming that Nature is generally equal to the carrying out of this process. Not seldom she is utterly unequal to the task. It is important to know what are the causes of her break-down; knowing these, we obtain valuable indications in practice."

A Winter in Florida, or Observations on the Soil, Climate, &c. By LEDYARD BILL. Second Edition. New York: Wood & Holbrook, 1869. Pp. 222.

THIS little book contains much that is interesting, and as a guide book would be useful. We have been told by those who visited that State during the past winter, that this book was in the hands of almost everybody, and that in all important points it is correct, though, perhaps, a little too highly colored. It seems to be the record of a traveller's experience during one winter. The routes to Jacksonville are mentioned, and the attractions of the peninsula for the pleasure-seeker, the invalid and the speculator are described. The chapter relating to climate most concerns physicians who have patients to send there. One who had come back from hunting alligators, whose face was deeply bronzed by a life passed almost entirely in the open air, assured us there was no place like Florida for persons with pulmonary diseases. The mean temperature during twenty years at St. Augustine, ranged from 57.03° in January to 80.90° in July. The average number of deaths from consumption, according to the census of 1860, was one in 1447, while in this State it was one in 254. The most favorable time for residence in Florida is from early in November to the first of May, though many persons may be able to remain the whole year. Not only consumptives, but those suffering from nervous prostration and general debility, are said to be greatly benefited. The portion of the book devoted to the pleasure-seeker, would also be useful for the invalid, showing him what are the means of amusement and recreation, without which an invalid's time would pass tediously enough. W.

Medical and Surgical Journal.

BOSTON: THURSDAY, JUNE 23, 1870.

THE PHYSICAL PHENOMENA OF LIFE.

M. DECHAMBRE, in the *Gazette Hebdomadaire*, gives, under the above heading, a review of a work by Prof. Gavarret, entitled *Des Phénomènes Physiques de la Vie*; and of a treatise by M. Liègois on physiology as applied to medicine and surgery. We make two extracts.

M. Gavarret aims at M. Cl. Bernard an ill-concealed reproach of inconsistency. On the same page, says Gavarret, on which Bernard declares that we shall eventually reduce to physico-chemical considerations all the properties manifested by the phe-

nomena appertaining to living beings, he does not hesitate to pronounce life to be a *special force*, directing and commanding all the movements, all the functions, all the acts of organized being. Life, says B., is *a creation*. Assuredly, replies our reviewer of the *Gazette* to Gavarret, there is in the idea of a *special creative* force all that is requisite to constitute an "authentic vitalism." In this sense Cl. Bernard is, if you will, a vitalist; but he is a vitalist to such an extent and in such a way as to save him, on examination of his statements, from the by far too flagrant contradiction of himself attributed to him by M. Gavarret in the passage cited. If we have, says our reviewer, understood the passage together with its context, taken in connection with other writings of the same author, the celebrated physiologist subordinates the development of the living being to an unknown force, the expression of a prëestablished *idea*, which determines the mould of such being, establishes the relative accommodation of its parts, while *forming* and associating them, in view of the special function of each, and of the harmony of all the functions—retains them, in fine, under its government during the whole existence of the being. And it is when the action of this force is disordered or perverted that disease or death comes. But its domain extends no further. In the mould which it has cast, and underneath its constant control, the whole work of the machine is performed by virtue of physico-chemical properties. If M. Bernard identifies the properties called vital with physico-chemical *properties*, it is because, according to him, the first do not emanate from the vital *force*, and have nothing in common with it. The vital are properties of matter on the same footing with its other properties, but of which, as he puts it, the phenomenal expression—as contractility, sensibility—does not lend itself, *at present*, to a physico-chemical interpretation. Thus, according to this doctrine, it is always to the *physico-chemical conditions* of primitive development in the living being that we must trace the *vital* manifestations (*explications*) both in the normal and in the pathological condition. The physiologist and the physician are compelled, therefore, to avail themselves of physico-chemistry. * * * * *

In treating of the question of the "solidarity," "reciprocity," or, as we say in English, the correlation of forces, the reviewer cites certain facts relative to muscular contractility. The light thrown upon the subject by the experimental method in the hands of MM. Beclard, Hirn, and Heidenhain, if it be not so dazzling as that from some other sources, has the advantage, he says, of being easily received by minds unfamiliar with difficult problems of this sort.

The muscles of the arm are in repose, their temperature being determined by internal combustion. They contract to flex the forearm. The internal combustion is augmented, and the temperature is proportionately elevated. But if they contract to raise a weight, the elevation of the temperature is less than in simple flexion. But that elevation, on the contrary, is greater if the same muscles contract to arrest a weight in its descent. What do these variations signify? They indicate that nothing has disappeared; that none of the heat is transformed which is developed by the simple flexion of the arm, without raising a weight, without accomplishing a useful work; that the quantity of *positive* work accomplished in the action of raising a weight is represented by the disappearance of an equivalent amount of muscular heat; and finally that in the *negative* work consisting in arresting a weight in its fall, there accumulates in the muscles a quantity of heat equivalent to the intensity of live force destroyed. The experiment shows that there is a *common measure* between the aggregate of work realized, or the aggregate of work destroyed, and the degree of relative lowering, or the degree of relative elevation of the temperature. * * * * * *

From the point of view of the transformation of forces, says the reviewer, the study of the nervous system is more interesting still than that of muscular contraction.

The action peculiar to the nervous system designated by the name *neurility*—just as the power of contracting resident in the

muscles is called *contractility*—shows itself, as every body knows, in two distinct ways: i. e. in transmitting on the one hand motion from the centre to the periphery, or on the other hand in transmitting an impression [sensation] from the periphery to the centre. The two orders of nerve *tubes* charged with these functions, have no other office. They are only agents of transmission. It is the *cellules* of the gray substance which communicate the stimulus to the nerves of motion, whether they produce it directly, or communicate it by reflex action. It is those cellules which receive the impressions conveyed by the nerves of sensation. Apart from the nature and the direction of the transmission, there exists no difference between the two orders of nerves. In other words, the neurility is the same in both. In both that property is subordinated to the anatomical structure without there being any pretext for introducing specific force; in both it is the attribute of the nerve fibre, and is not borrowed from the nervous centre; for the peripheral extremity of a motor nerve which has been cut across, continues for some time excitable. Finally, the most decisive proof of this identity of the neurility in the two orders of nerve fibres has been given by MM. Vulpian and Philipeau, in the beautiful experiment, in which, having cut the lingual nerve (sensitive) and the hypoglossus (motor), and having then united the central extremity of the first to the peripheral extremity of the second, they saw the former produce, under the influence of a stimulus applied above the point of union, contraction of the muscles of the tongue, while that member still continued sentient. * * * Passing over certain points, M. Dechambre comes still closer, he says, to the *physical phenomena of life*, in alluding to the increase in the activity of internal combustion, whether at the centre or at the periphery where nervous action is brought into play. An emotion raises the temperature of the body (Burdach), cerebral activity increases the formation of urea more even than muscular action (Byasson). The temperature of an excited nerve is higher than that of a nerve in repose (Helmholtz, Lombard, Valentin, Schiff, &c.). The experiments of Schiff upon excised portions of a nerve are particularly instructive—the more so that they appear to show a constant relation of intensity between the elevation of the temperature, the degree of stimulus applied, and the excitability of the nerve experimented upon. How then, he continues, in the words of Gavarret—how can we fail to perceive that there are between neurility and muscular contractility on the one hand, and heat on the other hand, relations of the same order? In fact, all these results constitute a remarkable accordance of phenomena. And this is not all. The electro-physiological experiments of Matteuci, and certain facts of physiological histology—such as the contraction of muscular fibres which have been deprived of their nerves—tend to prove that the nervous system does not exert a *direct* but only an indirect action upon the anatomical elements. Matteuci, on sending an electric current through a motor nerve, found that the mechanical work, accomplished by the corresponding muscle during contraction, is equal to 30,000 times the work expended to produce the excitement of the nerve. Here is manifestly the intervention of a force other than that furnished by the Voltaic current; and that force, which Matteuci determines by reducing to unity of heat the work accomplished by the muscular contraction and that given by the solution of the zinc in the Voltaic pile—that force can only come from combustion. The indirect action of the nervous system consists in exciting internal combustion, and in creating, by the heat produced, the force which is to be transformed and utilized for the accomplishment of a function; as, for example, for muscular contraction. By the intervention of nervous action, the physico-chemical operation effected in the woof of the nervous tissue is transformed into this other operation — physico-chemical also—by means of which the nerves intervene by their peripheral extremities, here in the secretions, there in muscular contraction, everywhere in nutritive action.

The nervous system, then, is to be regarded as the grand motive power of the

living mechanism; and as furnishing the requisite heat not by causing, but by *bringing into activity* as by a *spark*, and by regulating, internal combustion. And it is from that force [heat] transformed that *all* the histological elements—on the same footing with muscular fibre and the elements of nervous tissue itself—derive the distinct dynamic modalities, the special actions, which appertain to them. * * * In the words of Helmholtz, the body of the animal differs from the steam-engine not by the processes which give rise to the heat and to functional activity, but by the mode of appropriating this force to its specific end. M. Gavarret shows life to be characterized by the double circulation of matter and of force—the matter being furnished by the earth and the air, the force by the sun: force utilized by plants for assimilation of matter; transformed into affinity for oxygen; not destroyed, but, on the contrary, preserved under the form of *potential energy* in matter which has become organized; then transformed anew into heat in the general capillaries of the animal which is nourished by the plant, having now by that means become the source of all the functions of the organism. In the cycle, he adds, which revolves between birth and death, the organized being produces nothing, destroys nothing: matter and force come to it from the earth, the air, the sun; and it restores all to the external world.

Pigmentum Nigrum.—The ingenious plea of our able correspondent, on another page, in behalf of the American Medical Association as to its exclusion of the delegates of the National Medical Society of the District of Columbia, defends the Association on merely technical grounds; and we were not aware that the general practice of the latter very dignified body had been thus rigorous in its scrutiny of the status of medical societies and institutions from which delegates had offered themselves. At the recent meeting of the American Medical Association it was well understood and freely talked of beforehand that the engrossing question was to be that of "color"; and we consider it quite beyond doubt that the real question voted upon by the bulk of the members, when certain delegates from the District of Columbia were excluded, was that of *colored physic*.

From the Report of the Superintendent of the Boston Lunatic Hospital we take the following:—

"The number of patients under care, at this date, is 212—120 men and 92 women. Forty-four men and 31 women have been admitted, and 33 men and 32 women have been discharged, during the year. We now number 212, against 202 last year. The whole number under treatment during the year has been 277, against 266 during the previous year.

"Of the admissions, 56 were committed by court, 11 permitted by the Board of Directors, and 8 were received on legal certificates by the Superintendent. Of the last named, 2 were provided for until the court could complete the proper examination, and the rest were too sick to be transported far, or even to be turned away from our door. They werecared for from motives of ordinary humanity. All but one of them died. In each case the action of the Superintendent met with your instant and hearty approval. The admissions by the Board were all made during the early part of the year. At present it is the rule of the Board to admit none but upon an order of court, cases of great emergency alone excepted, and those left to the discretion of the Superintendent. Seven were transferred from the State hospitals at Worcester and Taunton, having become possessed of a legal right here, through the annexation of Dorchester. Many have been dissuaded from placing their relatives here, because of the crowded state of the house, and because they were able, after some sort, to provide for them elsewhere. They have accordingly taken them to other hospitals at great inconvenience and at an expense they are illy able to bear, or have kept them at home to the great discomfort of their families, and manifest and lasting injury of the patients. Many have done this reluctantly and with a bad grace, feeling that they were unjustly shut out from a participation, sorely needed, in the benefits of a hospital, for whose support they yearly pay their proportion by taxation.

"Of the discharges, 14 were recovered, 5 much improved, 3 improved, 6 not improved, and 37 died. One, of the 6 unimproved, eloped. One, of the 5 much improved, was subject to epilepsy. For years

before admission, and for a considerable period after, the fits recurred regularly every month. At these periods, he was always a quarrelsome, violent and dangerous man. Under the persistent use of bromide of potassium, for 17 months previous to his discharge, the fits were entirely suspended, and during the same period he was uniformly and thoroughly good-tempered and social. His removal was much regretted.

Of the deaths, 9 were from general paralysis, 5 from consumption, 4 from pneumonia, 4 from the exhaustion of chronic mania, 3 from old age, 3 from paralysis, 2 from peritonitis, 2 from the exhaustion of acute mania, 2 from epilepsy, and one each from dysentery, ulceration of the bladder and disease of the heart. No suicide, no accident has added to the death list. Three of the four cases of pneumonia were in old and very feeble patients. Both cases of peritonitis occurred in patients just convalescent from long and severe disease, and who succumbed to the fresh enemy without a struggle. Five other deaths were among those referred to before, as having been admitted by the Superintendent, who were brought to our door so sick that it was manifestly impossible to refuse them admission (though they had no other claim upon us), and who died in from two to thirty days after. The number of deaths from organic disease of the brain is noticeably large. What agency the crowded state of the hospital, the impossibility of warming it properly, and of ventilating it at all, have had in causing the large death rate of the year, we do not care to inquire. It is sickening to know that it has not been a feeble one, as you yourselves have seen, on more than one occasion, during your frequent visits here.

"The general health of the hospital has been good. No epidemic has worried us. No contagion has entered our wards. No suicide nor accident has fallen to our lot.

Dr. Walker dwells upon the need of a new hospital structure; and the building contractors want one badly. The question has been already discussed, as everybody knows.

Opium in Diabetes.—According to Dr. Pavy, opium, morphia, and codeine, all possess the property of checking the elimination of sugar by the urine. Codeine is most powerful, commencing with one half-grain dose and going on to ten-grain doses thrice a day. A man, aged fifty, after restricted diet and alkalies, was passing urine of specific gravity 10.38, with 26.64 grains of sugar per ounce. After 30 days of opium there was no sugar, and the specific gravity of the urine was 10.25. On leaving off the opium again, the specific gravity rose to 10.48, and 10.65 grains of sugar were passed in 24 hours. On renewing the opium, the sugar immediately lessened, although he continued to take ordinary food. A woman, aged 68, passed five pints of urine of 10.40 specific gravity, and sugar to the extent of 32.72 grains daily. By the use of opium, with ordinary diet, the urine in three months was of specific gravity 19.16, and quite free from sugar. She continued well for 12 months; then anxiety and over work renewed the disease. Again three months of codeine completely cured her. This is a great discovery of Dr. Pavy's.—*Dublin Medical Press and Circular.*

Lithotomy and Lithotrity.—Mr. Holmes Coote says, "Lithotomy, properly performed, is not nearly so serious an operation as some authors have made it. The last 22 cases performed at St. Bartholomew's Hospital have been, without exception, successful. In unfortunately fatal cases the cause of death is not hæmorrhage, or very rarely so. I cannot recall a case of death from hæmorrhage at St. Bartholomew's Hospital during the whole time that I have been attached to the institution. Neither is extravasation of urine a common cause of death with good operators. But when the kidneys have become diseased, the patient's power of recovery seems wonderfully diminished; and inflammation of the peritoneum is an event which the surgeon justly dreads.—*Ibid.*

Manganese in Blood and Milk.—A memoir just read at the Royal Academy of Sciences of Italy, by Professor Polucci, announces a great discovery. It is the constant presence of manganese in the human blood. In more than 20 analyses of the blood of persons of different sexes, professions, health, and temperament, there was always found a certain proportion of manganese. One of the consequences of this fact is that the metal ought also to be found in milk. Submitted to experiment this deduction is entirely confirmed. In 34 analyses of milk, 23 of which were human, four from the cow, and four from the goat, the presence of manganese was constantly observed.—*Ibid.*

Medical Miscellany.

Dr. Robert Thaxter Edes, of Boston, has been appointed by the Board of Overseers of Harvard University Assistant Professor of Materia Medica in the Medical College.

William S. Bowen, Assistant Surgeon United States Navy, has passed a successful examination before the medical board at Philadelphia, for promotion to the grade of surgeon.

Mr. Nunnely, of Leeds.—The death of this distinguished surgeon and medical jurist is announced as having taken place on June 1. Mr. Nunnelly was in his 62d year.

Meteorological.—A thunderstorm, said to be one of the most remarkable for this latitude, traversed New England three days ago. But—perhaps we shall be told bye and bye that it was not our thunder after all!

Mr. H. Case, House-surgeon to the West Herts Infirmary, Hemel Hempsted, has furnished the following notes:—

D. S., aged 50, farm-laborer, was admitted into the West Herts Infirmary in September last, suffering from chronic laryngitis. He had been attacked twelve months before with hoarseness and difficulty of breathing, and this had continued till a week before the date of admission, when he suddenly became much worse, being, as he said, nearly choked two or three times a day, so he sought relief as an in-patient. From the history it was looked upon as specific, and he was treated with pot. iod., hyd. bichlor., and frequent mercurial inhalations, but without avail. He continued to be seized from time to time with paroxysms threatening suffocation, and several times tracheotomy was about to be performed, but he generally rallied after the attack had lasted about five minutes. He experienced great relief from frequent inhalations of steam and a draught containing liq. opii sed. at night. He went on in much the same way for a month, when one morning he was seized with a violent fit of coughing, and brought up some substance which he luckily kept; this turned out to be a bit of bone the size of a small bean, carious, much worn away, and resembling a portion of a neck of mutton bone, and had evidently been swallowed twelve months before. He left the Infirmary, a week afterwards, quite well.—*London Med. Times and Gazette.*

Test for the Purity of Olive Oil. By Dr. Ramon C. Langlies.—In the numerous experiments we have made to ascertain the purity of olive oil, we have yet found no test giving better indications than that of Hanchecorne. With our experience of this we have adopted a process which will determine, in a positive manner, the presence of seed oils, cotton-seed oil in particular, in any sample of olive oil. The test employed is a mixture of three parts of pure nitric acid, forty degrees, and one part water. The operation is performed in a test tube or vial; three grammes of the oil to be tested are mixed with one gramme of the test liquid, and the mixture is heated on a water-bath. If the oil be pure, the liquid becomes clearer, and takes a yellow color, like that of purified olive oil; but if adulterated, the transparency will be the same, but the color red; with five per cent. adulteration the reddish color is characteristic, and with an adulteration amounting to ten per cent. it is decisive. The process occupies but fifteen or twenty minutes, and the coloration of the oils lasts for several days.—*Journal de Pharm. et de Chimie.*

Spotted Fever in Georgia.—One hundred and fifteen persons died with cerebro-spinal meningitis in Coffee county, Georgia, in the month of March. Malignant epidemics of this disease are prevailing, besides, in parts of Mississippi, Florida, South Carolina, and Pennsylvania.

To Correspondents.—Communications accepted:—Blue Pus.

Pamphets Received.—Microscopical Anatomy of the Human Liver. By Dr. H. D. Schmidt, of New Orleans, Pp. 60.

Married,—In this city, 17th inst., Henry T. Mansfield, M.D., to Miss Antonia Bucknam.

Died,—In this city, 16th inst., Dr. Henry A. Ward.—At Manhattan, Kansas, 10th inst., Dr. Amory Hunting, formerly of Franklin, Mass., and Providence, R. I.

Deaths in fifteen Cities and Towns of Massachusetts for the week ending June 18, 1870.

Cities and towns.	Number of deaths in each place.	Prevalent Diseases. Consumption.	Pneumonia.
Boston . . .	91	14	6
Charlestown	7	2	0
Worcester . .	13	4	0
Lowell	12	2	1
Milford	3	1	0
Cambridge . .	6	0	0
Salem	11	4	1
Lawrence . .	12	5	1
Springfield .	4	1	0
Lynn	10	1	0
Gloucester . .	7	0	1
Fitchburg . . .	3	1	0
Taunton . . .	5	2	0
Newburyport	5	4	0
Fall River . .	11	2	0
	200	43	10

Worcester reports two deaths from smallpox. From all the above-named places there are reported eight deaths from scarlet fever, four from cholera infantum, four from measles, and three from croup.

George Derby, M.D.,
Secretary of State Board of Health.

Deaths in Boston for the week ending June 18th, 91. Males 55—Females 36.—Accident, 2—anæmia, 1—asthma, 1—disease of the bladder, 1—inflammation of the bowels, 2—congestion of the brain, 1—disease of the brain, 5—inflammation of the brain, 2—bronchitis, 2—cancer, 2—cholera infantum, 1—consumption, 14—convulsions, 3—croup, 5—debility, 5—diarrhœa, 2—dropsy, 1—dropsy of the brain, 7—drowned, 1—dysentery, 1—epilepsy, 1—erysipelas, 1—scarlet fever, 4—gangrene, 1—disease of the heart, 4—intemperance, 3—disease of the kidneys, 1—inflammation of the lungs, 6—marasmus, 2—measles, 2—stricture of œsophagus, 1—old age, 3—peritonitis, 1—puerperal disease, 1—tumor, 1—unknown, 4.

Under 5 years of age, 34—between 5 and 20 years, 7—between 20 and 40 years, 23—between 40 and 60 years, 16—above 60 years, 11. Born in the United States, 70—Ireland, 15—other places, 6.